Southeast CHP Initiative

CHP in the Southeast

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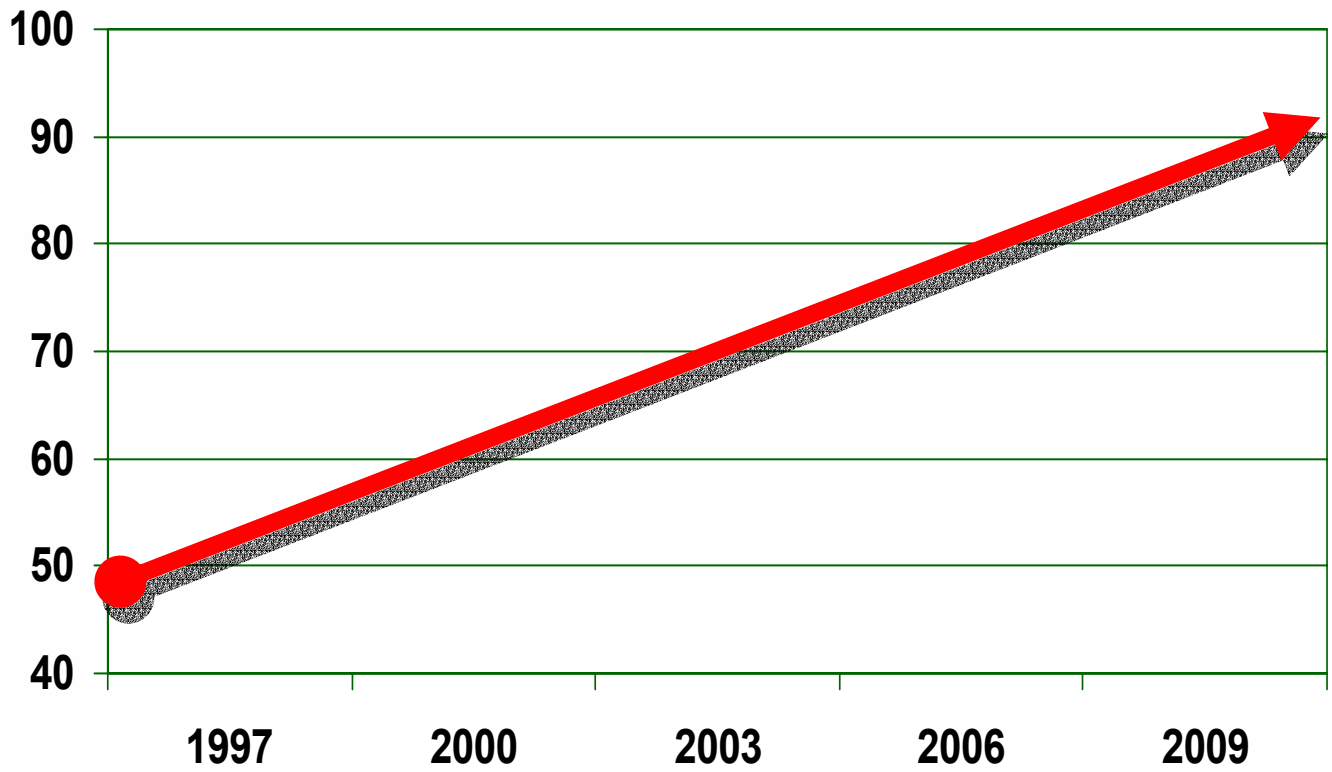
Energy and Environmental Analysis

- Professional services company focusing on energy markets and technologies
- Energy supply and demand modeling and forecasting
- Economic analysis
- Environmental policy analysis
- Analysis of energy technologies and markets
- Distributed generation and CHP

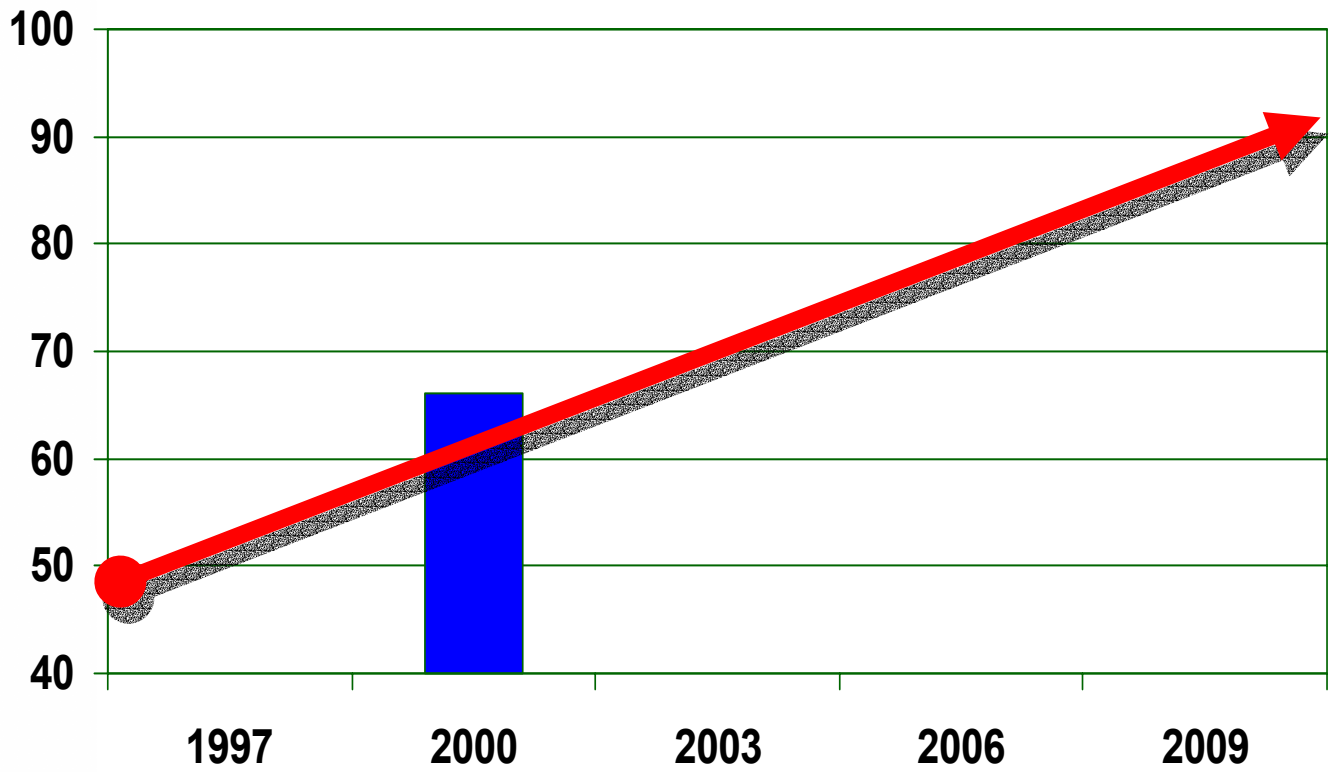
Agenda

- Review Existing CHP
- Compare the Southeast to the national picture
- First cut look at the potential for additional CHP in the Southeast

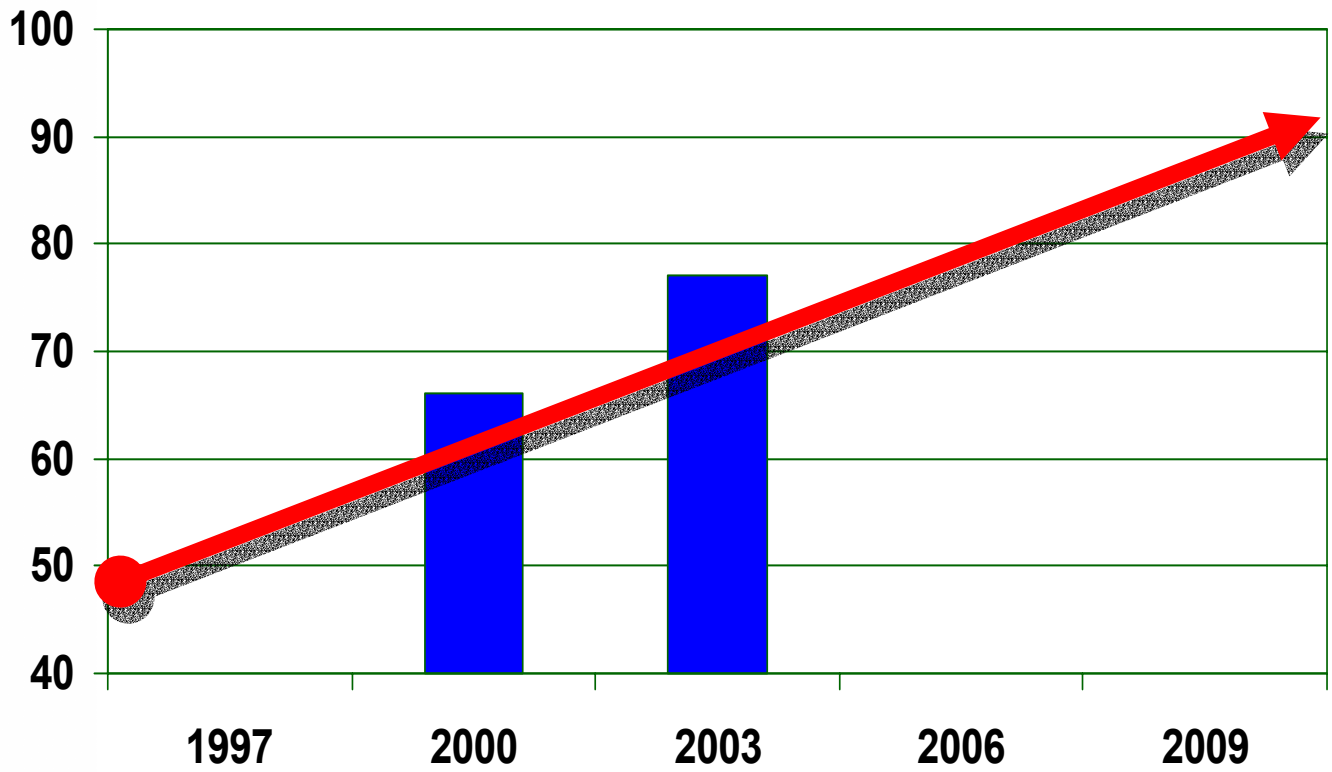
The National Goal – 92 GW by 2010



Progress – 66 GW in 2000…



Progress – 77 GW in 2003



Where Was Progress Made?

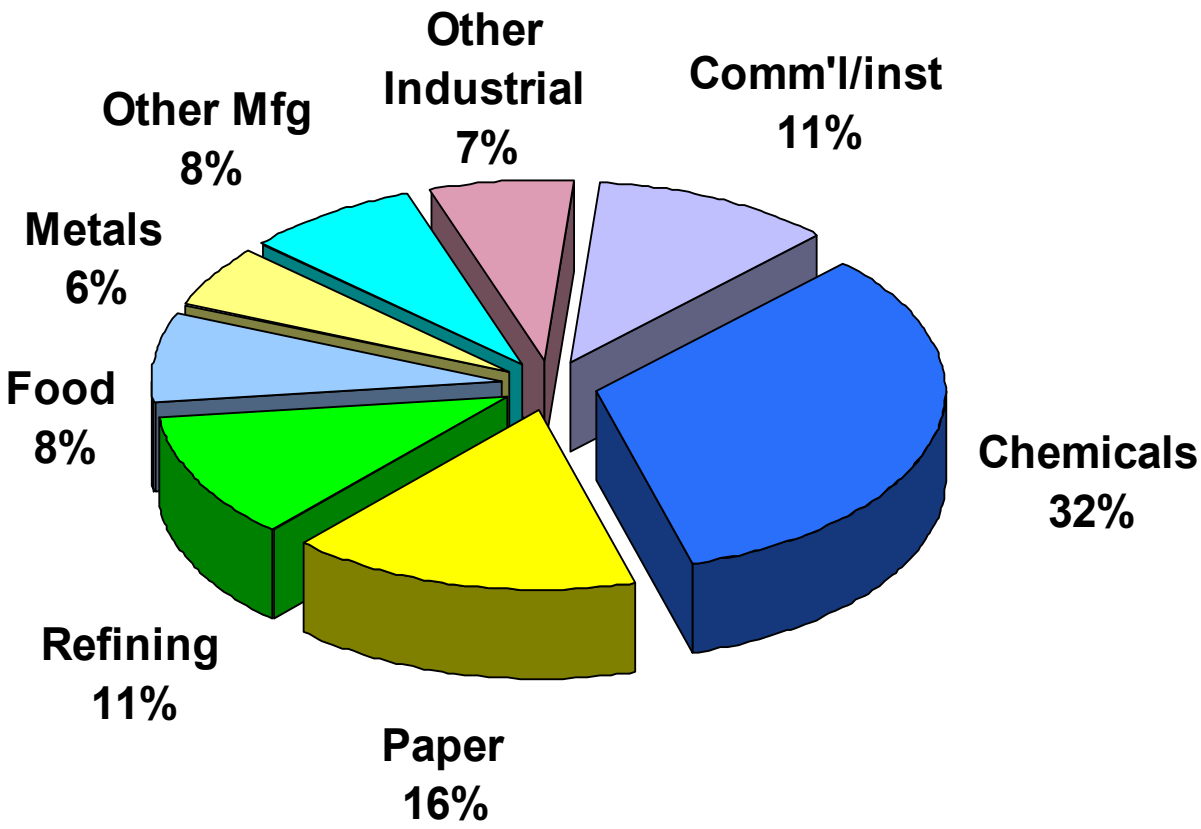
- Industrials: Refining, Chemicals, Food, Paper
- Commercial/Institutional: District Heating, Universities, Hospitals, Government
- States: Texas, Louisiana, California, Alabama, Michigan, Oregon, Midwest, Northeast

Installed CHP in 2003

- 77,100 MW at 2719 sites
- Average capacity is 28 MW
- Median capacity is 2.8 MW

Industrials Represent Close to 90% of Existing CHP

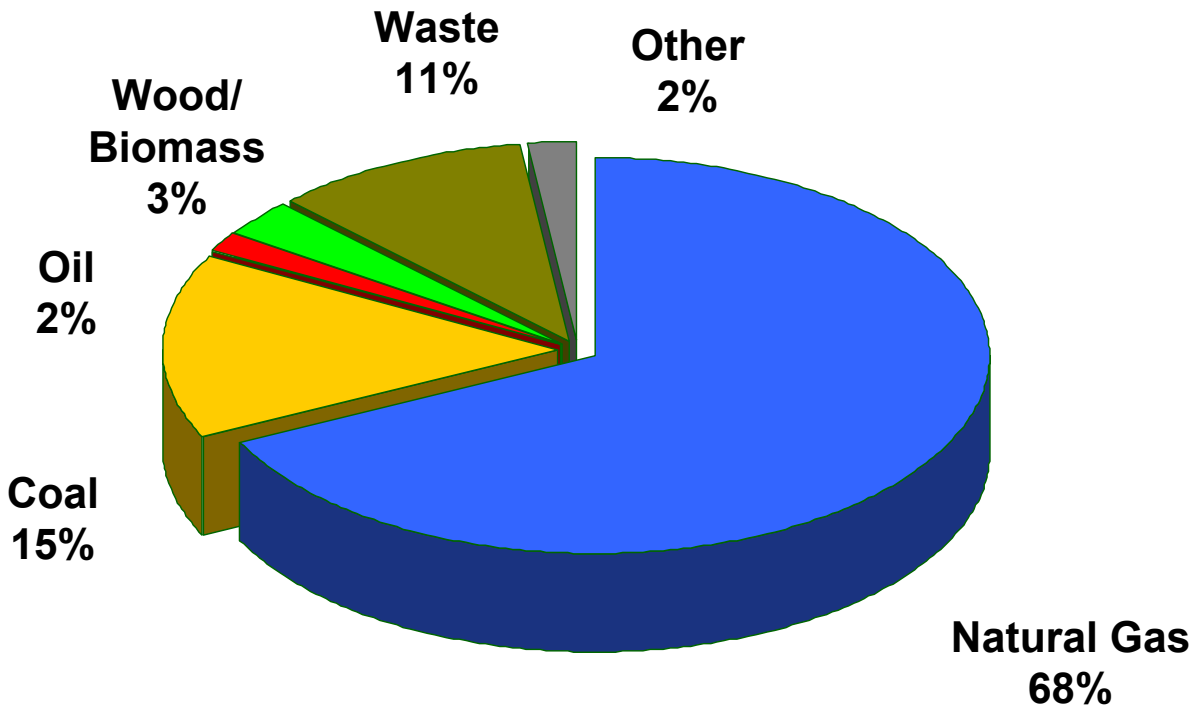
- *Existing CHP Capacity (2003): 77,100 MW*



Source: EEA

Natural Gas Is the Preferred Fuel

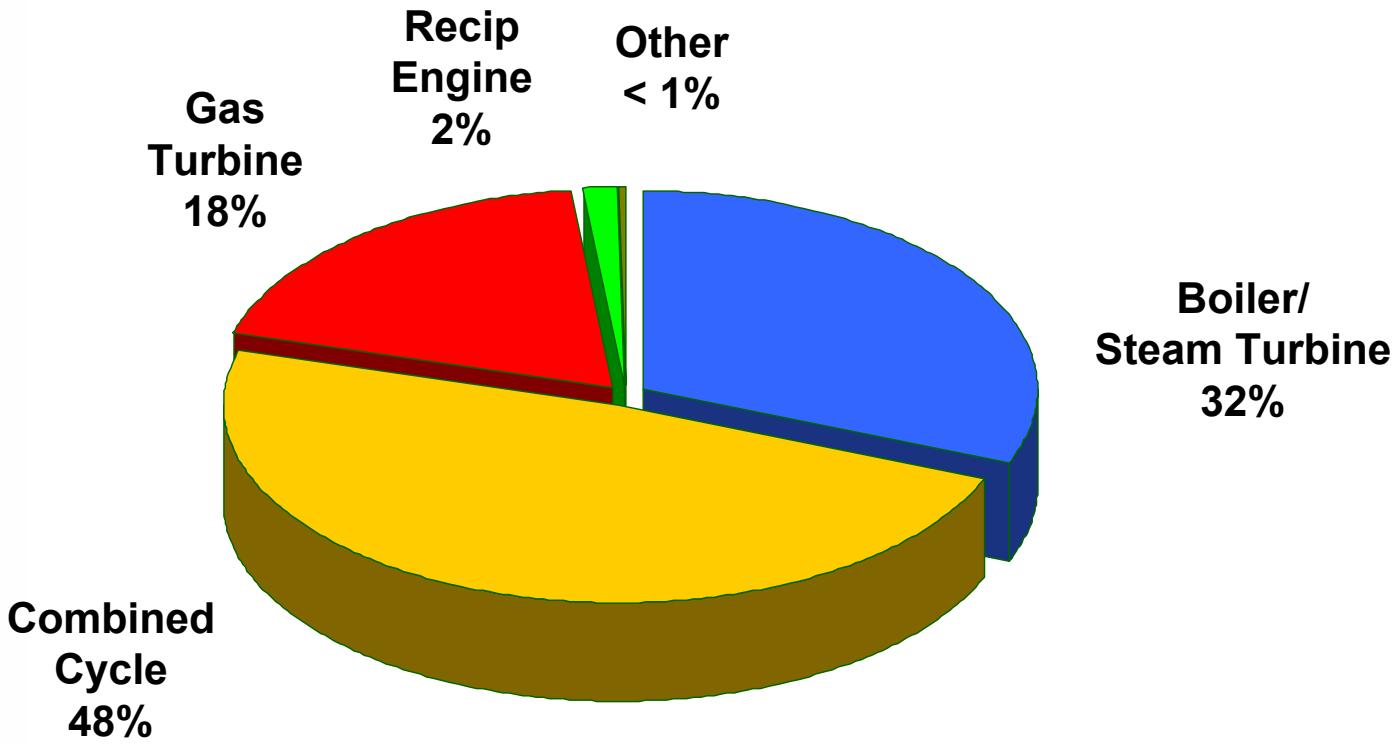
- *Existing CHP Capacity (2003): 77,100 MW*



Source: EEA

Gas Turbines Represent Two-Thirds of the Capacity

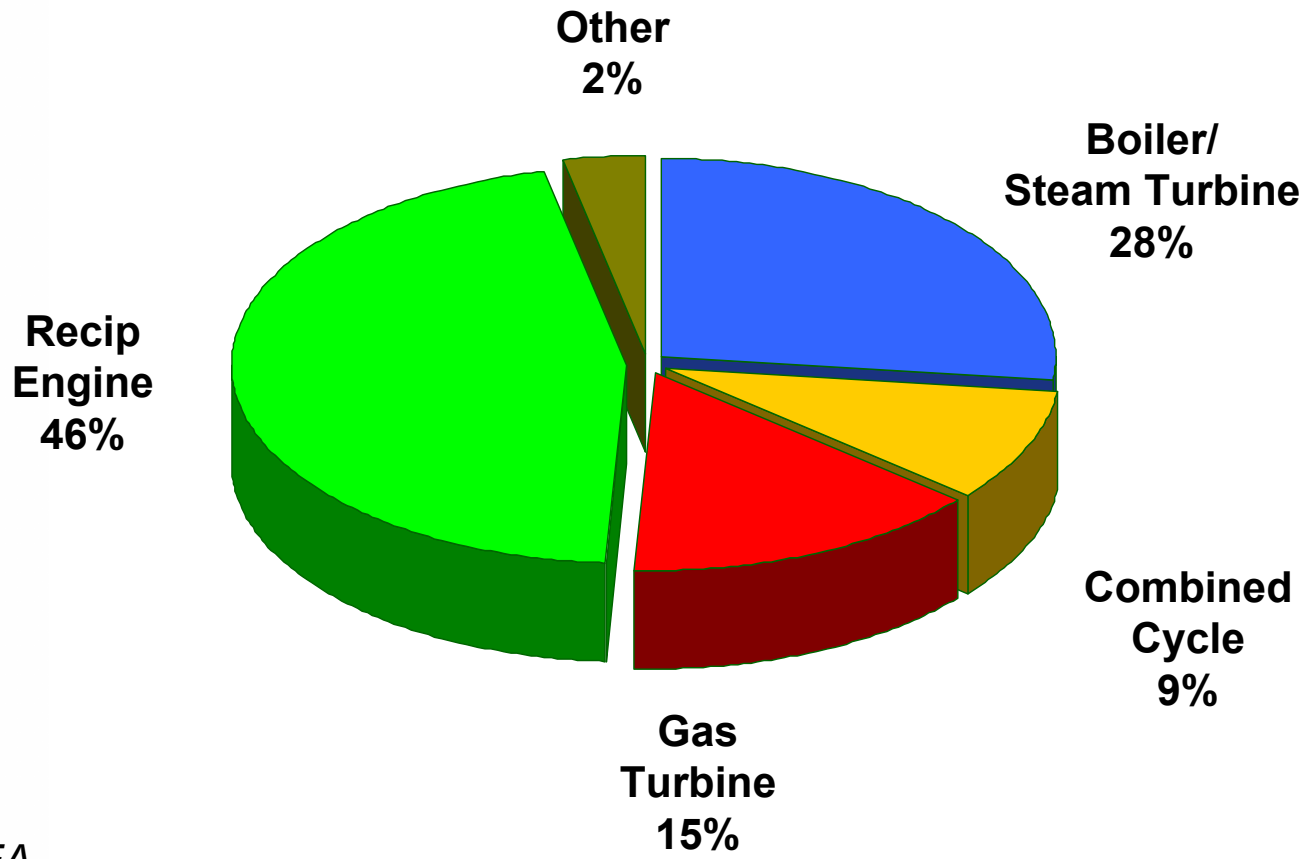
- *Existing CHP Capacity (2003): 77,100 MW*



Source: EEA

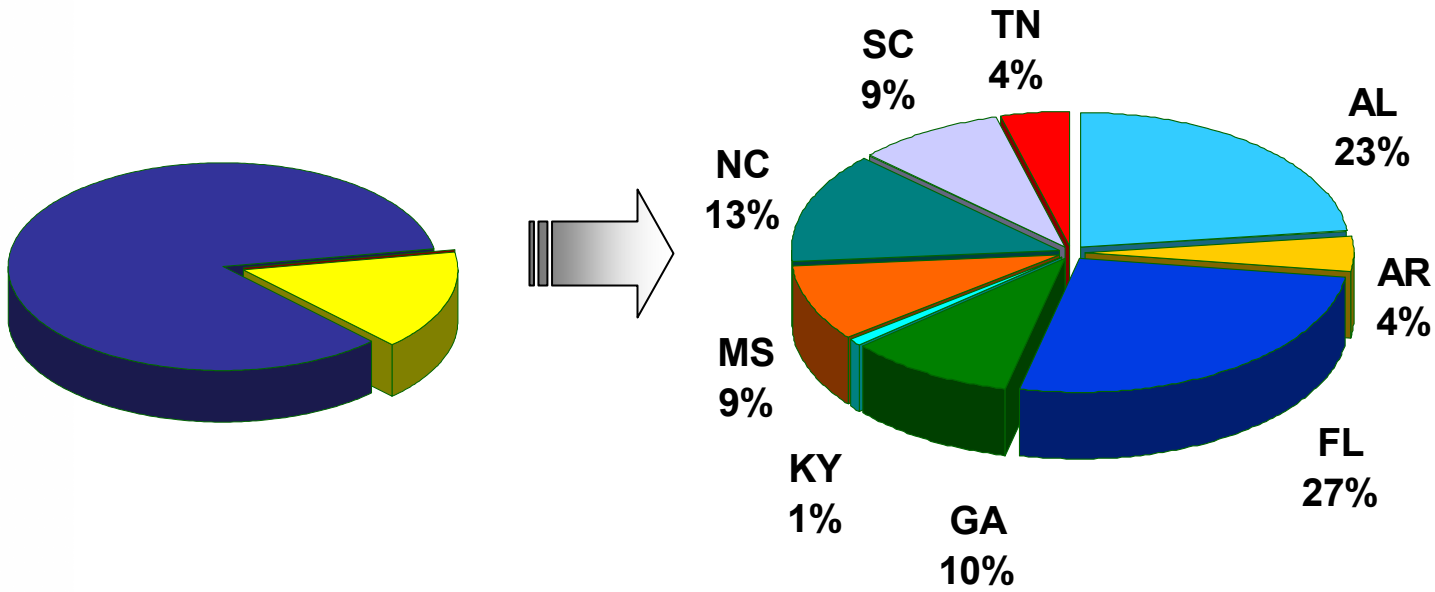
Recip Engines Represent 45% of the Sites Nationwide

- *Existing CHP Facilities (2003): 2,719*



Source: EEA

The Southeast Has 11,965 MW of CHP Capacity at 245 Sites



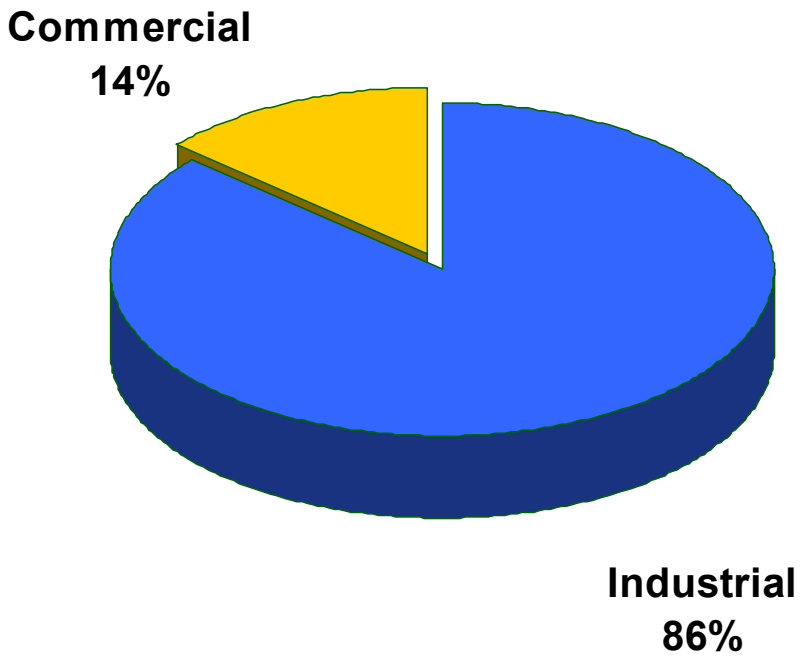
U.S. = 77,100 MW

Southeast = 11,965 MW

Source: EEA

Commercial Represents 14% of Existing CHP in the Southeast

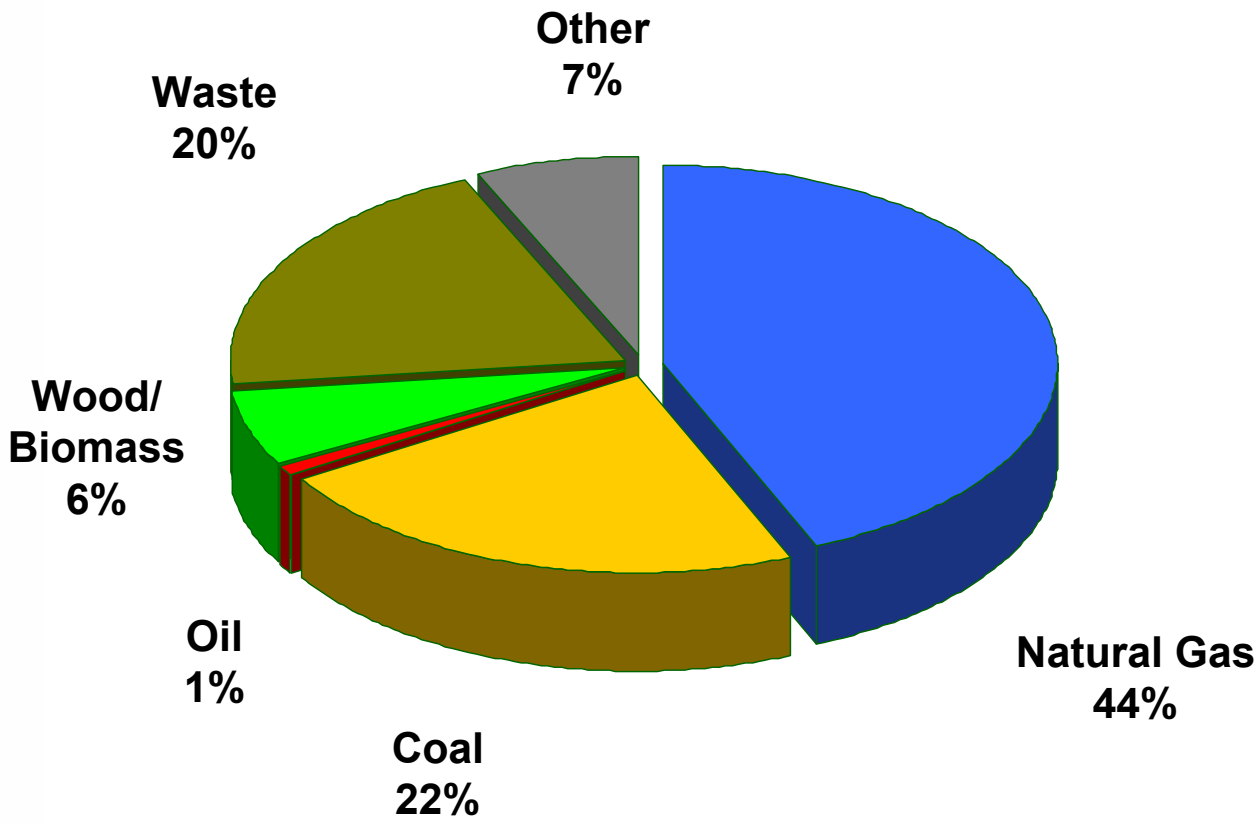
- *Existing CHP Capacity (2003): 11,965 MW*



Source: EEA

The Southeast Has a Diverse Fuel Mix

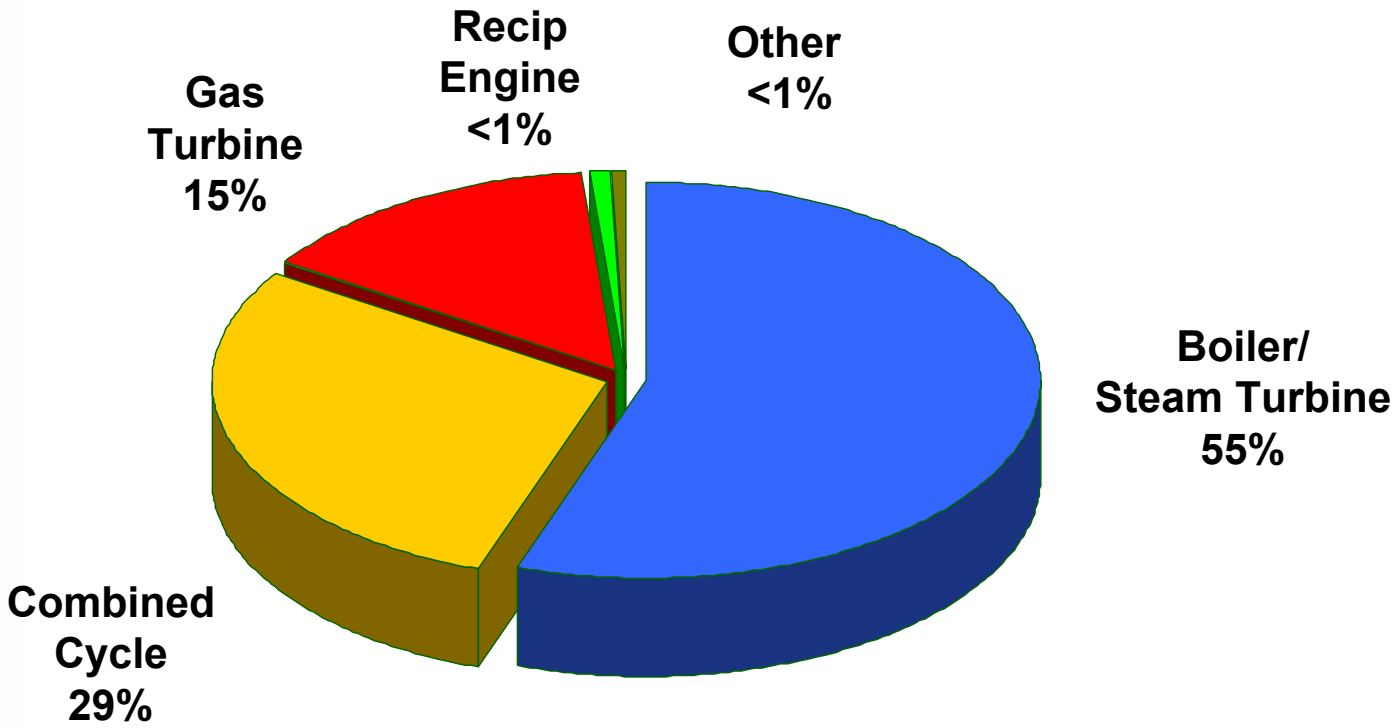
- *Existing CHP Capacity (2003): 11,965 MW*



Source: EEA

Boiler/Steam Turbines Represent Over Half of CHP Capacity in the Southeast

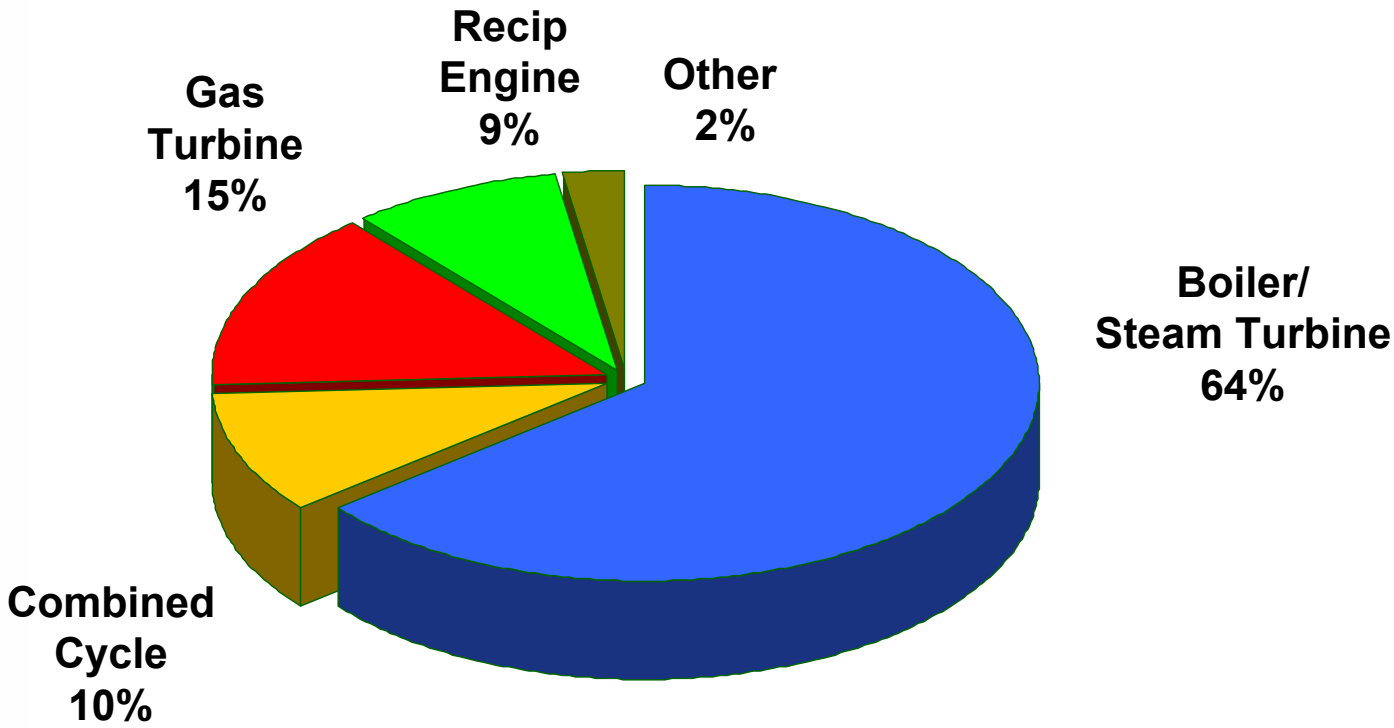
- *Existing CHP Capacity (2003): 11,965 MW*



Source: EEA

Boiler/Steam Turbines Are Used in Two Thirds of the Sites in the Southeast

- *Existing CHP Capacity (2003): 245 sites*



Source: EEA

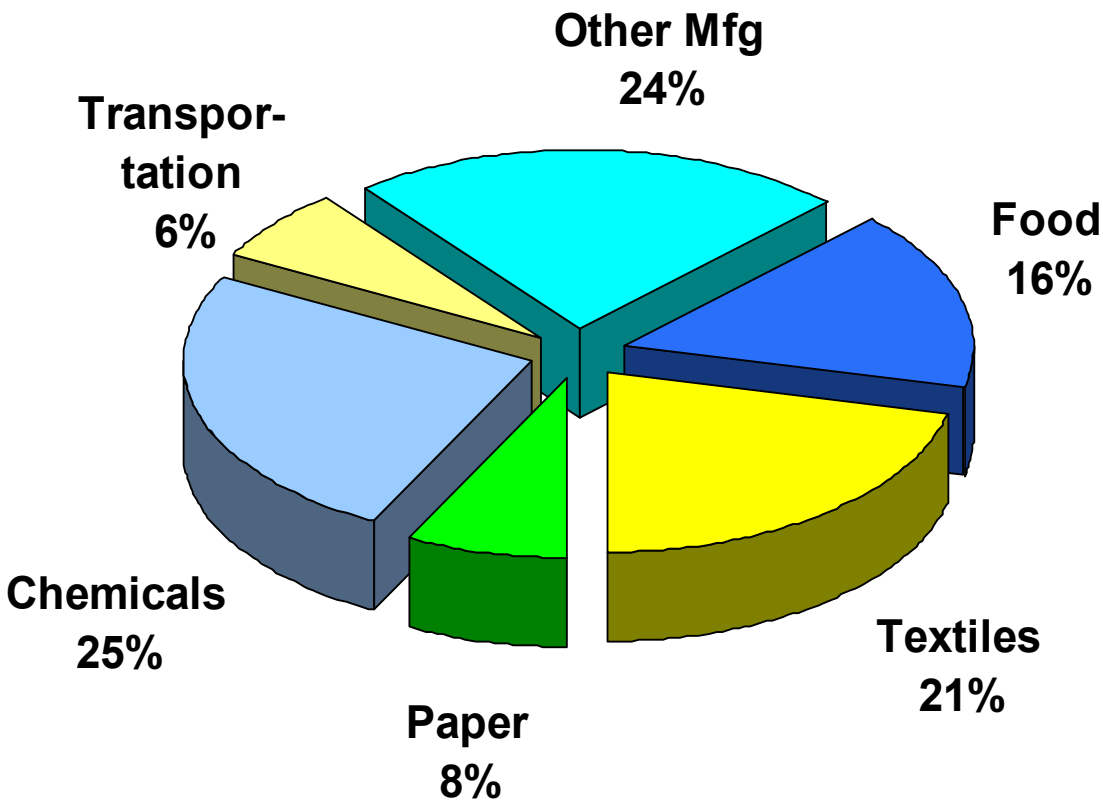
The CHP Profile in the Southeast is Unique

- The existing CHP systems are larger than the national average (49 MW vs 28 MW)
- Most of the existing capacity is solid fuel based (coal, wood, biomass, waste)
- The region has relied heavily on boiler/steam turbine systems
- However, 2,143 of the 2,243 MW of new capacity installed between 2000 and 2003 has been at five combined cycle merchant plants in Alabama (3), Florida and Mississippi

The Potential for Additional CHP in the Southeast (first cut estimate)

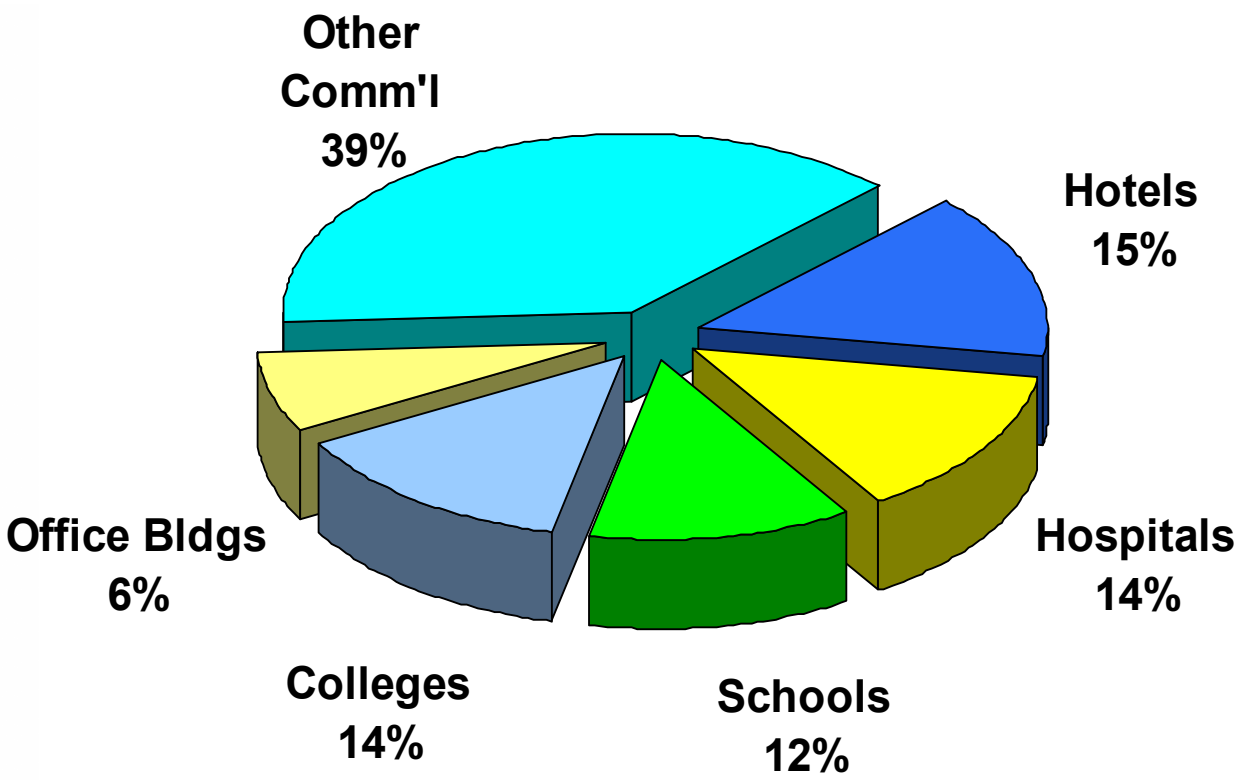
	Commercial (MW)	Industrial (MW)	Total (MW)
Arkansas	664	1,127	1,791
Alabama	967	2,996	3,963
Florida	5,526	1,019	6,545
Georgia	2,615	3,830	6,445
Kentucky	917	3,390	4,307
Mississippi	623	1,017	1,640
North Carolina	2,722	2,830	5,552
South Carolina	1,243	3,254	4,497
Tennessee	1,106	3,104	4,210
	16,382	22,564	38,946

The Potential for CHP at Industrial Facilities is over 22,000 MW



Source: EEA

The Potential for CHP at Commercial and Institutional Facilities is over 16,000 MW



Source: EEA

Almost 50% of the Potential Is Below 5 MW in Size

	CHP Potential, MW			
	< 1MW	1-5 MW	5-20 MW	>20 MW
Commercial	7,492	4,634	3,113	1,144
Industrial	1,984	5,469	8,155	6,960
	9,476	10,103	11,268	8,104

Will This Potential Be Developed?

- The additional potential is much different than the existing capacity – smaller, with-in-the-fence, new applications
- Success depends on further technology development
- Success depends on how the industry responds to key issues
- Success depends on actions at the state and regional level